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Risk, Uncertainty and Expectation as language game categories: - what we can still learn from Keynes

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Abstract

In this paper we will discuss the relation between the rationality of the agents, and the probability context that involves them in the decision process made by Keynes but considering categories such as expectation as language game, in the sense that Roger Koppl understand it as-if rationalizations. In this sense Keynes's expectations can be understand and see as *only* a very particular category: cognitive expectation and the uncertain situation as a very specific circumstance in production process. If expectation theory is one of the *crucial issues* in economic theory, a language game theory of expectation provide a more general case that need to be re-examine as a stimulating approach

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"By 'uncertain' knowledge, let me explain, I do not mean merely to distinguish what is known for certain from what is only probable. The game of roulette is not subject, in this sense, to uncertainty...The sense in which I am using the term is that in which the prospect of a European war is uncertain, or the price of copper and the rate of interest twenty years hence...About these matters there is no scientific basis on which to form any calculable probability whatever. We simply do not know."
(J.M. Keynes, 1937).

Keynes's fundamental statement on the investment process is that uncertainty is the main problem faced by entrepreneurs, regarding the decision-making process required by the need to calculate expected future incomes. Further, if it is assumed that the decision-making process in a context of uncertainty ought to be considered differently from the predictable concepts of risk decision. In this sense the rationality of the agents is to be understood through the way they form their expectations, their knowledge, and how they learn through this process and their process of choice. A reliable situation, which results from an empirical observation of the markets and from psychological factors related to business, smoothly leads to expectations that are based, overall, on the confidence induced by the facts known.

These expectations serve as future projections and, as such, they rely on the probability and confidence of the conjecture. If Keynes, however, suggests that the entrepreneurs' forecast process can be uncertain, he then believes, under circumstances, in "animal spirits" to

demonstrate that the entrepreneur action was sufficient in historical context that can also keep on through risk-taking.

The example of the investment process he demonstrates that it conduces to two sorts of basic decisions, the decision to produce with definitive equipment and the decision to add equipment to the existing one. The short-term variations of the expectations do not induce violent or fast changes in employment. Rather, they gradually influence production and employment. Which are then the factors that determine the forecasts of future incomes, which are the basis for the decisions about the pursuit of fixed capital investments? This question much exercises the minds of entrepreneurs, on the grounds of facts that can be foreseen with different degrees of certainty, and future events about which they might be provided with information of a relative confidence through rational institutions, without forgetting that the human mind is generative, creative, proactive, and reflective, not just reactive to make their way successfully through a complex world full of challenges and hazards, the entrepreneur has to make good judgments about their capabilities, anticipate the probable effects of different events and courses of action in action itself, appraise opportunities and constraints, and regulate their behavior accordingly. He builds a historical belief system that enable him to build a working model of the world that make possible to achieve desired outcomes and avoid troublesome, considering same level results and information. This repeatedly, generative, and significant capabilities are, therefore, vital for survival and human progress in a evolutionary system such as the capitalist system. (Bandura: 2001).

For the purpose of these reflections, it is assumed that Keynes's interpretation of "*risk*" refers to situations where the decision-maker can assign mathematical probabilities to the randomness that he is confronted with. In contrast, "*uncertainty*" refers to situations when this randomness "cannot" be expressed in terms of specific mathematical probabilities. Nonetheless, many economists dispute this distinction, arguing that risk and uncertainty are one and the same thing. For instance, they argue that in the conception of uncertainty, the problem is that the agent *does not* assign probabilities, i.e. that uncertainty is really an epistemological and not an ontological problem, a problem of "knowledge" of the relevant probabilities, not of their "existence". Some other economists argue that there are actually no probabilities out there to be "known", because probabilities are really only "beliefs". In other words, probabilities are merely subjective beliefs and have no necessary connection to the true randomness of the world. Some other economists, particularly the Post Keynesian ones, have argued that the distinction between "*risk*" and "*uncertainty*" is crucial. Specifically, they argue that "*uncertainty*" may be the only relevant form of unpredictability for economics - especially when it is connect with the question of time and information. On the contrary, risk-taking situations are only possible in some very artificial or controlled scenarios, where choices are comprehensible and experiments can plausibly be repeated -- such as in pre-established strategies. Risk, they contend, has no connection to the unpredictability of the "real world" that decision-makers usually face. The situation is usually unique and unprecedented, and the alternatives are not really all known or understood. In these situations, mathematical probability usually cannot be made. But the one problem that is confronted in this paper is that evidence demonstrates that human behavior deviates in systematic ways from the idealized behavior attributed to expected utility maximizers in particular, and to the "rational economic man" in general. It discusses the hypothesis of a representative example of almost rational economic man, the entrepreneur, who must systematically deviates from expected utility maximization in some ways, but who still has preferences. We will discuss the relation

between the rationality of this agent, and the probability context that involves him in the decision process, considering categories such as expectation as language game, in the sense that Roger Koppl understands it, as-if rationalizations. In this sense Keynes's expectations can be understood and seen as *only* a very particular category: cognitive expectation and the uncertain situation as a very specific circumstance in production process in the absence of a truthful theory, where cognitive processes are emergent brain activities that make use of determinative force and power. If expectation theory is one of the *crucial issues* in economic theory, a language game theory of expectation provides a more general case than a specific situation that Keynes elaborates in the GT.

1. Language games, the Koppl and Langlois proposal

"A language game is a set or a system of rules on how speaking, thinking, and to act in several and diverse situations, at the level of the action or like practice of the agent¹. The language-games framework lets social science give a unified picture of acting, thinking, and talking agents. An agent or agent-theory also have theories or models to give explanation their own actions to themselves as well as ways of elucidation their actions to others and persuading those others to cooperate, in a convincing way or rhetorically. It adds rhetoric and theory to the rule following framework adopted by many others. Language games exist in modular systems, the modularity of the system implies that knowledge is divided and information is often hidden. Information hiding promotes coordination among language games in a world of competing and incompatible interpretive frameworks. The language game it is not the play, is the set of rules governing action and reaction. The action is a skilled performance subject to the publicly known rules of some language game. Each language game must be consistent to a group of persons who recognize the rules of that game. They are part of the same group of action. The future time perspective manifests itself in many different ways. People set goals for themselves, anticipate the likely consequences of prospective actions, and select and create courses of action likely to produce desired outcomes and avoid detrimental ones

"(Koppl 2000).

Most of the social actions include the use of the language. Even in exceptional cases, the systems of the symbol are in the work. The games of the language regulate our use of the language and other systems of the symbol. Each social situation is governed by its own rules on appropriate speech. The agents build reciprocally with one to one or with an outer system. Each agent is made up of the separated pieces that can be broken for above and being recombined. The social papers and professions provide such relatively formal interfaces (Bandura, 2001)

In the context of a language game, the Keynesian theory seeks to develop a general model of the factors that determine the behavior of individuals in a monetarized economy, in order to provide a theory of output and employment. On the subject of production and employment, Keynesian theory considers that it is the marginal efficiency of capital that determines the level of investment – a crucial variable that, along with the propensity to consume, determines the level of effective demand. The Keynesian psychological agent doesn't have preferences, at least not in the sense that economists customarily think of them. Rather, he has a collection of mental

processes and different descriptions of options, different frames and contexts, different choice procedures, that bring out different processes. So he may sometimes exhibit preference reversals because choosing and pricing elicit different mental procedures²

In a world of ever-changing expectations, the persistence of a suboptimal level of employment is the result of insufficient effective demand, due to uncertain returns on investment, to wariness on the part of the investors and to changes in the patterns of behavior – and their underlying values - that have guided investors in their quest for profits in the past, along with the lack of effectiveness of the monetary policy associated with the persistently low level of the long-term interest rate in a gold standard context.

Investment thus becomes the key variable in the system, its level playing a decisive role in determining the level of output. In turn, this places the role of the entrepreneur as an essential element for the achievement of full employment at the very center of the analysis. Reasoning in highly neoclassical fashion, Keynes argues that, according to the principle of diminishing returns, the marginal efficiency of capital will tend to decrease as the level of investment increases, assuming a classical allegory that is at the same time a rule about competitive market. This is due, on the one hand, to a decrease in the expected return on investment as its supply increases and, on the other, to the increase in the supply price of the capital goods that is brought about by the increased pressure to produce those goods. Without questioning the essence of capitalism in its socioeconomic sense, this theory blames the economic inefficiency associated with unemployment on the perverse characteristics of a financial sector characterized by mere speculation and by the lack of the entrepreneurial spirit that was typical of the Victorian age.

The entrepreneur creates this new language game by engaging in what Max Weber called *charismatic authority* (Koppl 2002). He belong to a corporate group which is subject to charismatic authority is based on an emotional form of communal relationship. The administrative staff of the charismatic leader does not consist of “officials”; at least its members are not technically trained. There is no hierarchy; the leader merely intervenes in general or in individual cases when he considers the members of his staff inadequate to a task to which they have been entrusted. There is no such thing as a definite sphere of authority and of competence. There are no established administrative organs. There is no system of formal rules, of abstract legal principles, and hence no process of judicial decision oriented to them. But equally there is no legal wisdom oriented to judicial precedent. Formally concrete judgments are newly created from case to case and are originally regarded as divine judgments and revelations. The genuine prophet, like the genuine military leader and every true leader in this sense, preaches, creates, or demands *new* obligations. Charismatic authority cuts through these costs and establishes a structure based on the rhetoric and theory of the leader. Schumpeter would no doubt add that charismatic — entrepreneurial — authority is not merely an efficient response to systemic recombination but is in fact the principal generator of it.

The negative heuristic of the Keynesian theory stipulate that the most common mistake associated with the real rate of present investment consists in considering the marginal efficiency of capital in terms of the present return of the production equipment, which would only be correct in a static situation in which future developments did not influence the present. The schedule of the marginal efficiency of capital is of crucial importance, rather than the interest rate – because it

is through this factor that the expectations *vis-à-vis* the future influence the present. This investigation is clearly written in a marshallian language of economical analysis where short and long are not only a rhetorical aspect of the time dynamics that gives a equilibrium making process, but also a decision process influenced by previous expectation in investment. In Keynes as well in Marshall, this process of stability in prices and quantities conduce to equilibrium situation, but in Keynes can be not a unique equilibrium.

Since the capitalist economy is a market economy, in which the production process takes place across a given time span – not only because production itself takes time, but also because the investment in capital goods reflects the future consumption needs –, the expectations of all agents, particularly those of the investors and entrepreneurs, – are of paramount importance for the economic activity. It is in this sense that expectations – the ways thought the entrepreneurs perceive the future events that will affect the economic system – play a key role, expectations are the economic agents' way of interlinking the present of production using capital goods and the future of consumption.

On the other hand, expectations are the way in which the forecasts of the quantity of consumption goods and predictions of the future influence the decisions of the economic agents to produce capital goods; thus, the expectations depend on the manner that the business forecasts reflect upon those decisions to invest. However, expectations and forecasts influence one another not only in an objective way, via the quality of the information, but also in a psychological sense, by way of the relevance of the information. Through the exercise of forethought, people motivate themselves and guide their actions anticipating future events, an animal spirit motivation (but it can be a survival instinct). When projected over a long time course on matters of value, a forethoughtful perspective provides direction, coherence, and meaning to one's life. As entrepreneur makes profits and progress in their life schedule they continue to plan ahead, reorder their priorities, and structure their lives accordingly (Bandura, 2001). The capacity to bring anticipated results and to submit present activities, promotes behavior foresight. It allows people to surpass the dictations of its immediate atmosphere and to form and to regulate the present to fit a wished future.

In the regulation of that behavior by expectations, entrepreneur adopt the lines of conduct that are probable to produce positive results and to reject those generally that bring ingrate or to punish results. Nevertheless, advance the material and social results are not the only class of incentives that influence human behavior, because functionalism crude would suggest. If actions were performed only on behalf of anticipated external rewards and punishments, people would behave like weather vanes, constantly shifting direction to conform to whatever influence happened to impinge upon them at the moment. In actuality, people display considerable self-direction in the face of competing influences. After they adopt personal standards, people regulate their behavior by self-evaluative outcomes, which may augment or override the influence of external outcomes. (Bandura, 2001)

“An agent has to be not only a planner but a motivator and self-regulator as well. Having adopted an intention and an action plan, one cannot simply sit back and wait for the appropriate performances to appear. Institutional organization thus involves not only the deliberative ability to make choices and action plans, but the ability to give shape to appropriate courses of action and to motivate and regulate their execution. This multifaceted self-directedness operates through self-regulatory processes that link thought to action. The self-regulation of motivation, affect, and action is governed by a set of self-referent subfunctions. These include self-monitoring, performance self-guidance via personal standards, and corrective self-reactions”

(Bandura, 2001). These are the psychological, sociological and environmental conditions for an entrepreneur to be a leader in social process, that Keynes designates as *animal spirits*.

The formation of expectations depends upon whether the information that was considered relevant actually proved accurate – indirectly influencing output and employment. When Keynes indicates that expectations that in the past have led to the purchase of a certain equipment good or to the accumulation of stocks may have no direct influence upon the formation of new expectations regarding the desired level of output, as well as no consequences in terms of employment, is referring to a situation where there is uncertainty about the future of investment itself, but that reflects a vast information about production, cost and employment.

But Keynes doesn't consider very seriously "what people usually make, because the exercise of agent capabilities is a prime player in the economical process. People are not only reactors to selection pressures, but they are producers of new ones at an increasingly pace, but he believes that at any given time and in any given situation, the level of employment depends not only on the present expectations, but also on the past expectations, insofar as the latter affected the quantity and characteristics of the current equipment goods.

Expectations reflect the decision to produce, which should take into account the production costs for a given level of demand, while taking into consideration the various production scales, total sale-proceeds and the price elasticity of demand. In the present these predictions and forecasts assume that, in the future, things will in a way remain as they have been in the past. Hence, the levels of output and employment in the present depend upon those expectations. The accuracy of the expectations in terms of the actual levels of output and sales that occur in the end leads either to their revision or to their corroboration and, in turn, to new predictions, to build new expectations.

The formation of short-term expectations is a continuing and enduring process, whose accuracy depends almost solely upon the actual results of the process of knowing the past. It is in fact wiser for the producers to make their decisions based on short-term expectations whenever no significant changes are expected that might affect expected future returns or the expected cost of the production factors or that might generate any other unexpected variations. Insofar as expectations are and reflect a learning and cognitive process, Keynes was making some straightforward proposal, because people's shared belief in their collective power to produce desired results is a key ingredient of a society. Changes in the short-term expectations do not bring unexpected or immediate changes in the level of employment, since their influence upon output and employment is gradual. This provides an explanation as to why the level of employment changes slowly and gradually in a depression or in an economic recovery situation. Therefore, it is not the present expectations that change the level of employment; rather, it is in fact the changes in the long-term expectations. As Bandura writes: ***a cognitive theory extends the conception of human agency to collective agency. Group attainments are the product not only of the shared intentions, knowledge, and skills of its members, but also of the interactive, coordinated, and synergistic dynamics of their transactions. Because the collective performance of a social system involves transactional dynamics, perceived collective efficacy is an emergent group-level property, not simply the sum of the efficacy beliefs of individual members. However, there is no emergent entity that operates independently of the beliefs and actions of the individuals who make up a social system. It is people acting conjointly on a shared belief, not a disembodied group mind that is doing the cognizing, aspiring, motivating, and regulating. Beliefs of collective efficacy serve functions similar to those of personal efficacy beliefs and operate through similar processes*** (Bandura, 2001).

The decision to produce more goods is a consequence either of an increase in demand – which leads to higher expected returns –, of an increase in the return per unit of output, or of a rise in employment. In this situation, the expectations of the producers depend on the long-term expectations of the investors, which, by their own nature, are never entirely perfect. In reality they follow a rule, which is in Keynes' word “to beat the gun”, which adds to the fact that long-term expectations are subject to rapidly and unforeseen changes in a speculation environment.

If Investors make choices and decisions, based on facts that can be predicted with more or less certainty as well as on future events with regard to which the investors seek to obtain reliable information. Long-term expectations depend on future events and tendencies, such as the future changes in the stocks (in terms of both quantity and type) of equipment goods, the intertemporal preferences of consumers, the level of effective demand during a given period – during which the equipment good is in use –, or the changes in the wage-units in nominal terms.

In forming his expectations, the entrepreneur seeks to draw on reliable information, even when that information is of lesser relevance. The confidence on the part of the investor has an extremely important effect upon the marginal efficiency of capital, by influencing the rate of investment. Its level is determined by the empirical observation of the markets and by the psychology of business. The main problem lies in the fact that the information set on which the entrepreneurs draw in order to formulate their expectations of future returns is of course rather incomplete and precarious. Expectations are based, above all, on the reliability of the known facts that are used for making forecasts and, thus, depend on the accuracy and reliability of those forecasts.

Future events cannot, of course, be causes of current motivation and action because they have no actual existence. However, by being represented cognitively in the present, foreseeable future events are converted into current motivators and regulators of behavior. In this form of anticipatory self-guidance, behavior is motivated and directed by projected goals and anticipated outcomes rather than being pulled by an unrealized future state. Keynes recognizes that present facts have a disproportionate and overwhelming influence upon the formation of expectations – it is in fact extremely common for the entrepreneur to expect the persistence of the present trends, albeit with slight variations for one reason or the other. People construct outcome expectations from observed conditional relations between environmental events in the world around them, and the outcomes given the actions they produce (Bandura, 2001). This idea is not often associated with Keynes, but he wrote two year after de General Theory discussing policy problem with Colin Clark :

“In short, an unforeseen change in the situation leads to temporary anomalous values of propensity to consume, rate of investment and liquidity preference and there is a lag before these anomalies cure themselves. How long these anomalous values persist... is a matter of practical importance for forecasting but it does not really affect the central theory. When there is an unforeseen change of the conditions the propensity to consume departs from its normal value and there is a time lag before it resumes it “(Keynes, 1938) This seem as Keynes stressed the uncertainty about the long term expectation's formation as the impossibility of knowing facts and data about the future, but this turn itself irrelevant if the central theory had the capacity to explain and the theorist had the ability to predict facts with this theory, further the theoretical problem don't exist.

The problem is not the inability in forecasting investment, but in the behaviours of investor that indicate prices that aren't the one that correspond to full employment quantities. The sub optimal

equilibrium in the short term is evident; the problem is that Keynes following Marshall's methodology interprets the short run and long run as secular mechanisms of balance between not required scarcity and ample abundance. In the under employment equilibrium, that could be a unnecessary shortage and plenty situation, if the past of the long term expectations of the stated period determines an inferior level of demand than the full employment, it leads to adjust the investment to the low level, in which the level of unemployment is greater than of voluntary and frictional unemployment. In this situation unemployment will be associated with a under employment's stationary state.

This static time language is much confusing to someone reads Keynes without knowing the Treatise on Money, where is clearly thought the economy not as position of balance and disequilibria, but as fluctuations in a wicksellian framework of natural rate versus of banking interest rate. In the General Theory, fluctuations are of the marginal efficiency of the capital related with an interest rate that can be too high. What happens in the long confirmed period? This question arise the problem of the uncertainty, but it only take place when the marginal efficiency of capital is in the descending part of the curve; exactly, in the point next to the interest rate that run as the minimal point; is at that point here where the decision to invest will depend on the marginal cost of money.

The trouble is that the decision to invest admits to be just or only function of the productivity of capital (of the anticipations of the returns generated for the investment) depends on the interest rate (given the distribution, preferences, the technology and organization, institutional environment). This price would have to guide the amount of investment goods to be produced, in the perspective of getting the maximum profit. This price of money allows to produce the goods of corresponding consumption to the choice of the families.

But this price raises up because exist conventional expectations in the financial market, when the rule is "you beat the gun", i.e. when the strategy of the investor is the speculative easy profit, which generates the regressive expectations on the part of the industrial entrepreneurs, they cease the investment, because the marginal efficiency of capital is decreasing and the interest rate is too high.

As the issue concerns free competition, it is not the irrationality of the agents that generates the situation of long stated disequilibria period, but of perfect and incomplete competition. Keynes assumes that the entrepreneurs is dependable to the pronouncement of the investors, or said one in another way, he assumes that the economy is in debate between the interest of long stated period of the entrepreneur, and the short term of the investor, where the short period rule.

The financial intermediation should go in a direction to improve financial plan of the economy increasing the efficiency of the credit system? There are two situations that need clarification in Keynes. They are the problem of the long stated period of production and the work and mechanisms for achieving it and the problem of knowing how the economy finds the way back to full employment when there is a situation of underemployment equilibrium. To understand how this situation broke out in a crisis state, that is a general state of affairs, and the problem about the way it leaves this circumstances is that one that Keynes has in mind, but they only coincide in a crisis situation, when the effective demand problem exists, the first could be a supply problem and more.

The realization of investments are made in accordance with the conventional method, which assumes that the current business trends will persist indefinitely; however, empirical evidence clearly shows that is improbable the case; i.e., the evolution of the stock market prices depends

upon all sorts of conjectures, many of which are in no way related with the expected future returns. In this sense prices of stock market and shares have not more the same sense for the allocation process. If certain types of investment are determined by the conventional expectations of the stock market speculators, rather than by the actual expectations of the professional entrepreneurs, the price of the stocks reflects the on-going reassessment of both: the conventional expectations and the level of confidence. To purchase a share will not conduct to a process of adjustment between the necessary quantities to be produced in order to generate equilibrium in goods market. Consumer will not maximize their consumer function; producer could not have the maximum profit, equilibrium in finance market indicates or can represent disequilibria in the whole economy.

Table 1

	Investor	
Entrepreneur	(1,1)	(0,0)
	(0,1)	1,0)

In table 1 we basically represent what Keynes could have in mind in chapter 12 of the GT. Imagining that the agents have a strategy based on expectations and considering only that they have formed their expectations in a rational way; the game based idea of equilibrium situation confront investor and entrepreneur, both the individual agent mentioned by Keynes. We consider further that when an agent forms their expectations in the same sense that the investor does, we have a kind of equilibrium that can nominate full employment equilibrium (1,1). In this case, there is any discrepancy about the convenience price about the share, right expectation about the expected return and immediate profit guide the economy from the finance market to the good market in full employment equilibrium. A second solution is (0,0), the kind of employment that we find in a crisis situation, the entrepreneur knows that demand is so low, that investment is no sense, there is no money creation and the interest rate is too high, this is the depressive phase of the cycle. The demand falls and the supply adapts itself to the drop, there is unemployment in a permanent and persistent way, the monetary policy does not make any trick (Patinkin: 1955). When they break up the opinion about the future we have a disequilibrium situation.

The table shows two other possible situations; when the expected return does not advise to take a *risk*, investment becomes an unpredictable process (0,1) because the interest rate could be too high if bull and bear dominate the stock market and an additional demand in money market pushes the interest rate upwards. In the short run this doesn't conduce necessarily to unemployment, but in the long run the level of productive capacity will be lower than it is necessary to be. This dynamic aspect of Keynes' explanation authorized a lot of research in growth theory. The conventional expectations of investors are not the convenient manner to protect a full employment investment of entrepreneur, because the prices of bond and shares lost the possibility to be an indicator for an equilibrium. Also in a situation where organized markets exist for the supply and demand of investment in which the conventions could be trusted to remain unchanged, the level of investment could then be enhanced if the conventions remain unchanged, for investments will then be safe: even in a series of short periods of time, every conclusion can be assessed and reviewed before making any significant changes. Keynes makes a clear distinction between

speculation – which consists in making predictions regarding market psychology – and entrepreneurship – which has to do with forecasting the future returns on certain goods in the future. The fourth situation (1,0) is analogous to (0,1) situation. The entrepreneur only invests in the short run, because the marginal efficiency of capital is too low and the interest rate is may be too high. A lower interest rate could help but the problem is somewhere else³. Is the change in people psychology that at the basis for trying and guessing the wishes of the masses than to cautiously analyze the trends and conditions of the business fabric, to seek immediate profits, those earnings that will only occur in the more distant future will be discounted by the average man at very high rates, which end up frustrating the expectations of investments. The long-term investors, who pursue the public interest and oppose stagnant conventions, have suffered with the change in long term expectations.

In this sense, the stock market can be considered, according to Keynes, as the Nemesis of aberrant behaviors. If the stock market is regarded as an institution whose social function is to channel investments to their most productive uses in terms of social returns, then it should certainly be reformed in order to bring back the central role of the long-term investments. Individual initiatives can only be adequate if their underlying rational calculations are based on *animal spirits* and on an audacious productive intention. According to Keynes, the most puzzling aspect of this system is the fact that economic prosperity relies exclusively on the social and political environment that pleases the average businessman.

Just because the formation of expectations in a particular situation that Keynes analyze is surrounded by uncertainty, one should not be led to assume that the business world is solely built on irrational psychological elements. Keynes clearly expresses his firm belief in the fact that long-term expectations are often both stable and reasonable: This idea reaffirms Keynes after two years in a well known extract in which discussing with some of his critics, he writes:

"By 'uncertain' knowledge, let me explain, I do not mean merely to distinguish what is known for certain from what is only probable. The game of roulette is not subject, in this sense, to uncertainty...The sense in which I am using the term is that in which the prospect of a European war is uncertain, or the price of copper and the rate of interest twenty years hence...About these matters there is no scientific basis on which to form any calculable probability whatever. We simply do not know." (Keynes: 1937).

This belief was based on there being certain factors that reduce the level of uncertainty regarding the future, i.e., certain pieces of information with regard to foreseeable future returns that allow for the formation of optimistic expectations. In the case of some business companies, their likely returns are determined by their returns in the near future, in the case of some long-term investments, as is the case in the housing construction sector, long-term public sector investments, in which the returns are certain because of the monopolistic position that enables the investor to set the margins required to obtain those returns.

These investments usually seek to fulfill ever-growing human needs, e.g., energy, water, transportation, communications, public services, and also in the case of certain public sector investments that have an important social character. This considers also that some political and social reasoning is translated into investment actions through *self-regulatory* investment mechanisms, which include moral judgment of the rightness or wrongness of conduct evaluated against personal standards and situational circumstances, and self-sanctions by which moral

agency is exercised (Bandura, 2001)

The importance of the changes in expectations is the result of the effects that these changes also have upon the desire to produce new goods. The role of the State in catalyzing investment, ensuring the reliability of information and fostering the *animal spirits* that fueled capitalist growth in the 19th. and 20th. Century is not a mere figure of speech: it is a way to render prospective calculations more reliable and to bring the investors' confidence to more reasonable levels.

2. The probabilistic approach of expectations

The probabilistic approach of the expectations gains greater importance through the way Keynes discusses the uncertainty in the General Theory. This is of extreme importance inasmuch as it allows a different point of view with respect to the role of the expectations in the elaboration of the concepts of marginal efficiency of the capital and liquidity preference, two key pillars in the theoretical construction of Keynes.

In chapter 12 of the General Theory, Keynes affirms that the state of long-term expectations not only depends on the most probable forecasts but also on the confidence associated to them. The economic decisions are not taken entirely in a risk context, as in the case of test that are repeated and whose probabilities are calculated on a frequency basis, but in a context of uncertainty, characterized by information scarcity.

More precisely, an interpretation of the expectations in the light of the Keynesian concept of the probabilities makes it possible to see, for example, the formation of the long-term expectations and the use of this concept in the calculation of the marginal efficiency of the capital. Keynes assumes that the entrepreneurs start with the observation of a series of information that the market provides in a regular way. Starting from these, a series of elements is derived, which can be in the prospective evaluation of the return of the investments. From this prospective evaluation, based on a certain degree of knowledge, expectations result that can stimulate or hinder investment and, in this way, a probability is determined.

Since the entrepreneurs decide the levels of production on the basis of their demands and the expectations on prices, the forces of the demand added to the propensity to the consumption and the marginal efficiency of the capital influence the production level. And this proposal of Keynes is previous to the condition of the equilibrium. If in a determined point in time the whole market is in excess relatively to the production, this will be a moment for the revision of the expectations and of the production plans. If we pay attention to the fundamental propositions contained in chapter 3, in the light of his notion of probability, where Keynes summarizes the propositions later developed in his work, namely that the involuntary unemployment is caused by the insufficiency of effective demand, the involuntary unemployment corresponds to the observed reality, of which we have direct knowledge.

The aggregate demand is a proposition known through the argument. The explanation of the economic forces is part of the logical relation between observation and conclusion. In other words, an increment in the investment leads to an increment in the income. Here the 'increment in investment' constitutes the evidence on which we basis our argument, while an increment in the income is an induced conclusion with a probability determined by the degree of rational belief that can be attributed to this conclusion. Notice that this is valid within the set of propositions, among which that $Y = F(N)$ where N is $N = F(D)$, considering the state of the technology as known, the consumer's preferences as given, etc., the reason why another function

$N = x(D)$ being x a decreasing function (the Ricardian case of the introduction of the machines that diminish the employment and the income) can lead to another conclusion and therefore logically to one another degree of rational belief. This probability, however, does not have anything to do with the given result in terms of income level.

The entrepreneur's decisions on the short term production depend on the short term expectations on the return. The decisions pertaining to the increase of the production depend on the long-term expectations with relation to the return of the investment. The capitalist system is characterized by the fact that both decisions take place simultaneously in a point in time, influencing both the forces in action. We can here discard the error that the method of Keynes has in consideration the phenomena in a time horizon and contrary to Marshall's view, where phenomena happen in time- periods of different nature and length. This approach places the analysis in a very high degree and level of generalization and abstraction, in which it is possible to take into consideration the meaning of an ample set of phenomena (Carabelli: 1988.)

As Kregel demonstrates, this consists in the coexistence of three different processes of decision-making. Two of these are short-term decisions: decisions of the entrepreneurs who plan the combination of the factors in the short-term horizon, the decisions of the owners of wealth concerning the assets to be held. The third, one is a long term decision: the decision of the entrepreneurs to create demand for the new capital goods, in the basis of their short terms expectations. The decisions can be correct or wrong (Kregel:1982).

If this decisions are taking in the basis of beliefs, this must be also useful in order to not contradict the economical activity, so efficacy beliefs play a key role in shaping the courses lives take by influencing the types of activities and environments people choose to get into. Any factor that influences choice behavior can profoundly affect the direction of personal development. This is because the social influences operating in selected environments continue to promote certain competencies, values, and interests long after the decisional determinant has rendered its inaugurating effect. Thus, by choosing and shaping their environments, people can have a hand in what they become.

However, the interaction of millions of agents leads obviously to contradictory decisions, the General Theory doesn't say how to make correct decisions, but it tells us that if they are wrong, the error will influence the formation of the expectations in some future point of the time. If they are correct does not mean that they will be repeated, i.e., that the rate of investment, or the normal rate of accumulation, or the use of the capacities will tend to be fulfilled according to the long-term expectations (Meltzer: 1981).

To argue that in the course of time the interest rate and the investment tend to certain normal values due to the fact that the forces that hinder this trend tend to be neutralized over time, implies the definition of postulates from which we deduce which forces are temporary and which are permanent. But there is in economics so like in general life chance and moral hazard. The power of most fortuitous influences lies not so much in the properties of the most economical events themselves, but in the constellation of transactional influences that they set in action (Bandura, 2001) Actions give rise to self-reactive influence through performance comparison with personal goals and standards. Goals, rooted in a value system and a sense of personal identity, invest activities with meaning and purpose. Goals motivate by enrolling self-evaluative engagement in activities rather than directly. The self-regulative effectiveness of goals depends greatly on how far into the future they are projected. Distal goals alone set the general course of pursuits but are too far removed in time to provide effective incentives and guides for present action, given inviting competing activities at hand. Progress toward valued futures is best

achieved by hierarchically structured goal systems combining distal aspirations with proximal self-guidance. Goals embodying self-engaging properties serve as powerful motivators of action (Bandura, 2001).

The strong side of the conception of expectation resides in the way as the argument is basis on the greater possible objective information, namely, the observed reality. People's attributes, belief systems, interests, and competencies influence whether or not a given chance encounter gets converted into a lasting relationship. On the social side, the impact of fortuitous encounters partly depends on the holding and molding power of the social milieus into which people are fortuitously inaugurated. In a socially mediated mode of organization, people try by one means or another to get those who have access to resources or expertise or who exercise influence and power to act at their order to secure the outcomes they desire. The subjective factor in the formation of expectations exists. It resides in the choice aspects of the reality taken as influence point, and it does not have anything to do with the arbitrary nature of the conclusions, but it constitutes the key point of the complete theory. It is unquestionable the key importance to Keynes of the intensity of effective demand, the existing amount of capital goods, the trends in the market of values -contrary to the spots of sun or the whether which the entrepreneurs would take as control point of the reality when formulating their expectations.

The theory of the probability is logical, because it depends on the degree of belief that guide the rational reflection under certain circumstances, and not because the beliefs arise from a particular individuals. The particular propositions that we select to ourselves as the premises of our arguments depend on particular, peculiar and subjective factors, but the relations, in which other propositions lie upon these, and that we label probable relations, are objective and logical. It is important to stress that probability has an objective character inasmuch as it gives place to the degrees of belief of a prepositional basis in the logic, distinct from the probability of subjective-psychological degrees of belief that can be quantified by some method, as for example the method of betting of Ramsey (O'Donnel: 1990).

Human logics can help to understand the mechanism that leads to determine the stability state, i.e., the complex of conditions from which the agents derive decisive importance in their decisions making. The fact that the relevant and available evidence increases the weight of the probability of an argument may add or decrease it, depending on whether the new knowledge reinforces the favourable the evidence.

In the General Theory, the overwhelm of uncertainty in expectations means information scarcity, which is the worse basis to infer consequence on the future. The only basis for a higher knowledge in uncertainty situations is better information, an improved degree of confidence relatively to this information. The uncertainty about the elements that form the expectation reduces the confidence. In this sense the choice of the entrepreneurs is a probable decision and not a not decision at all, and in this sense as Beckert) believe, in many spheres of functioning, also when people do not have direct control over the social conditions and institutional practices that affect their everyday lives, under these circumstances, they seek their well-being, security, and valued outcomes through the exercise of proxy agency. No one has the time, energy, and resources to master every realm of everyday life (Beckert: 2002)

Undoubtedly, one of the most original characteristics of Keynes's vision of the capitalism is that the expectations motivate real and financial economic decisions. However, this expectation, previously designated, could be derived with the possible highest degree of probability and exactly even though not correspond to the factual reality, which is influenced by a vast number of circumstances Successful functioning necessarily involves a blend of reliance on proxy agency in

some areas of functioning and effort to manage directly other aspects of one's life. The comparison between the logical conclusions and the factual reality is illegitimate and cannot constitute a decisive element in the judgment of the theory.

Keynes regains thus a certain methodological clarity, allowing for interpretation of the uncertainty in terms of probability. In this way his theory of the expectations lies far beyond of any irrational interpretation of the impossibility to know the things and the phenomena. The exercise of effective control requires mastery of knowledge and skills only attainable through long arduous work. Moreover, maintaining ability under the ever-changing conditions of life demands continued investment of time, effort, and resources in self-renewal. In this sense expectation are the translations of subjective psychological understanding about the objective progress of economical life.

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